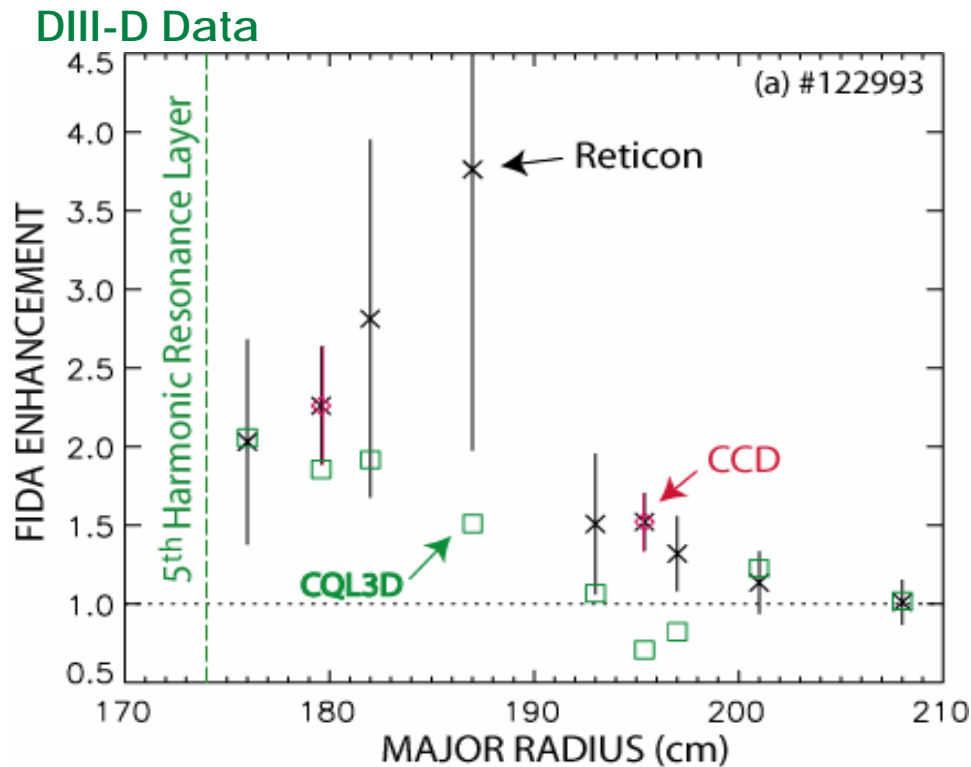


# Spatial Profile of Beam Ions accelerated by HHFW



*Heidbrink, PPCF 49 (2007) 1457.*

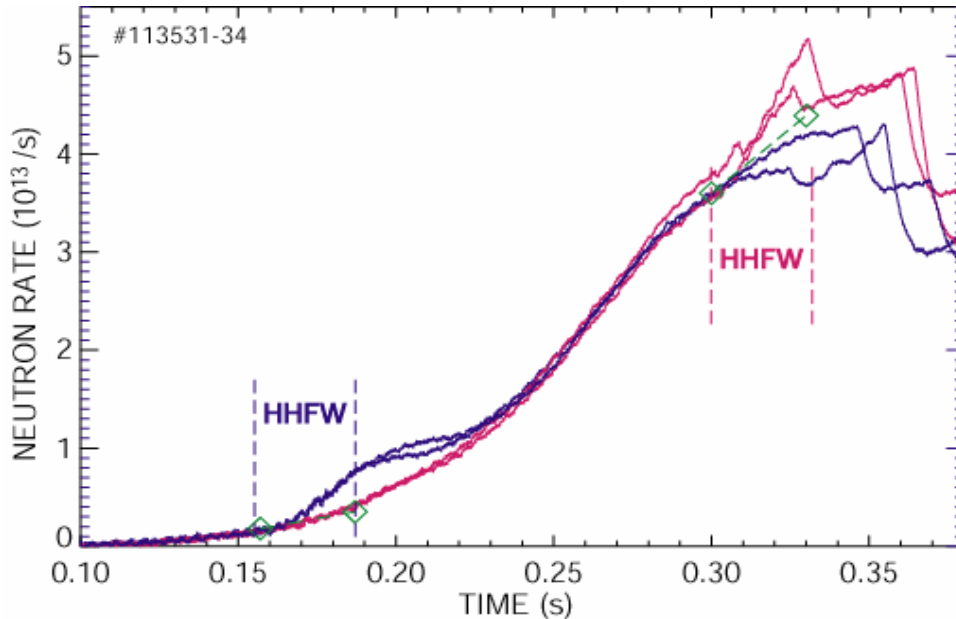
- Fast-ion acceleration has been observed with neutron and NPA diagnostics

- The new 16-channel FIDA installation can measure the spatial profile of ions accelerated above the injection energy

- Many cyclotron resonances → interesting physics regime

# Select low-density plasma for strong acceleration & good FIDA data

NSTX data with 2-3 MW of HHFW



*Heidbrink, PPCF 48 (2006) 1347.*

- Significant enhancements observed by neutrons & NPA in L-mode plasmas with helium fill gas
- Regime well suited for FIDA

# Spatial Profile of Beam Ions accelerated by HHFW

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## Waves & Energetic Particles

- Establish target plasma
- HHFW power &  $k_{\parallel}$  scans.
- Vary beam properties; modulate sources for diagnostic checks

0.5-1 runday

3 Sources, ~3 MW HHFW, 0.8 MA, >0.4 T, IW/DND, Helium

Essential: All fast ions, Thomson